

THE CALIFORNIA VETERINARIAN

Highlights of

MIDWINTER CONFERENCE

Pages 26 and 27



JANUARY-FEBRUARY
1959

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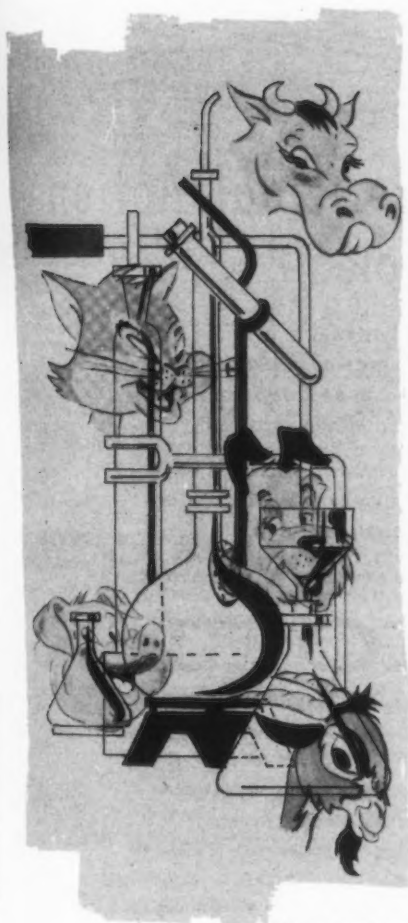
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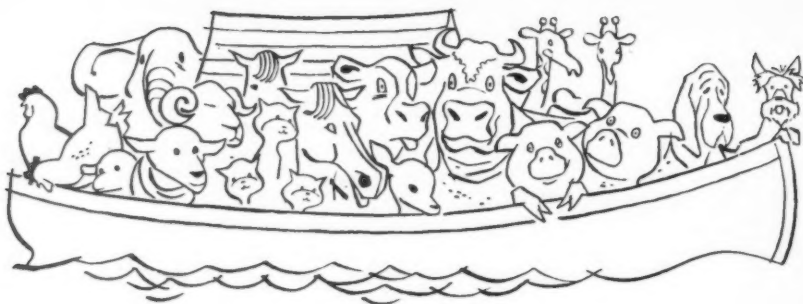


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*U.S. Patent No. 2,565,057



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Will Medicated Feeds Replace The Veterinarian?*

BLAINE MCGOWAN, D.V.M.

Assistant Professor, School of Veterinary Medicine, University of California, Davis

The question posed by the title of this discussion is not easily answered, nor should an answer be made lightly. It would be short-sighted to answer this question without a searching look at all phases, aspects, and facets of the animal industry. And any such attempt would be precluded to failure.

On occasion we all lose sight of the fact that veterinarians, nutritionists, geneticists, animal husbandmen, feed manufacturers, retailers, and veterinary products manufacturers are all engaged in a profession or occupation that has one common denominator—service to the livestock industry. The customer or recipient of our combined services is the livestock operator, who is becoming increasingly aware of the influences of breeding programs, husbandry practices, and disease on the efficiency of his operation. He wants—and should get—the highest quality of prepared feeds; the latest information on nutrition, genetics, and husbandry regimes; and the most effective animal health program for his particular operation. I would be presumptuous if I tried to judge all these services, but on the subject of animal health I am firmly convinced that our mutual customer is not receiving the optimum service that could be rendered, nor have we more than scratched the surface of this portion of our allied and combined services.

There is a magic appeal in a medicated preparation sold to cure all diseases and take care of all disease problems. When this type of product, a medicated feed, was first made available to livestock producers, many bought blindly in the false belief that their disease problems were at an end. In the animal industry, new concepts, ideas, and products frequently get more credit at first than they deserve, but as time passes they find their suitable niche in the scheme of management, production, and disease prevention. We should remember that DDT was initially supposed to eliminate the fly—and antibiotics, mastitis—but continued use and critical evaluation showed that they were only an aid in prevention, not a panacea. Medicated feeds are following this pattern, and I believe we are now entering the phase of more critical evaluation of these products.

Adding medicaments to a ration is a sound concept, and will produce many benefits to the livestock industry—but only in direct proportion to the intelligence of their application on the basis of their proven merit, and in conjunction with an over-all herd or flock disease-prevention program, supervised by a veterinarian.

The allied and interlocking professions and occupations that serve our mutual customer,

the livestock producer, should all be vitally concerned with the success of his business, which can be no better than the combined performance of the animal units under his supervision. The trained nutritionist is called on to devise rations that produce the most meat, milk, or wool; the trained feed manufacturer to formulate, blend, and mix these rations; the trained geneticist to guide selection of animals for higher production; and the trained animal husbandman to take these techniques, along with many others, and develop a sound and economic management and husbandry practice. Why then should we not call on the veterinarian, a man trained in animal health techniques, to devise, supervise, and conduct disease-prevention programs designed to allow the other services to exert their maximum influence on healthy animals?

The allied services to the livestock industry have been working separately too long. There must be a closer bond between production programs and disease control. These services are inseparable and indivisible in the modern livestock business. It is no secret that undiagnosed, unrecognized, or improperly treated disease can negate the best nutritional and husbandry regimes, and conversely, improper nutrition, care, and management of animals can most assuredly affect their health. We are past due for a meeting of minds in all the service fields to the livestock industry, and I believe, if such a meeting materializes, that the veterinarian should be present as a full-fledged member of the animal-production team.

It would be highly facetious for me to say that there is not some antagonism among the various animal-production and health services. It is not my intent to catalog provocations; but in all honesty it can be said that none of the factions is lily-white or blameless. Some of the leaders in the feeds industry have said that adding medicaments to rations has been done primarily to cope with competition, and that they do not intend to become veterinarians. I believe, by and large, that this is the feeling of the industry. Conversely, I have not seen many veterinarians enter the feed-manufacturing field. Why then, shouldn't we look toward increasing cooperation among all who serve the livestock industry. I sincerely believe that the health needs of domestic animals can best be met by trained veterinarians. I further believe there is a great field in preventive medicine—and a great need for veterinary service in that field. The question may then be posed; if this need is so great and the opportunity exists, why are not more veterinarians engaged in this type of practice? Many factors are involved, but the following seem quite pertinent to me.

*Presented at the California Animal Industry Conference, Fresno, California, October 20-21, 1958.

First of all, let's not lose sight of some important and basic requirements that must be met by this type of veterinary practice, or by any other service to the livestock industry. The services rendered must be paid for by a livestock producer; there must be sufficient compensation to assure a reasonable living for the person who provides these services, and conversely, the services performed must more than pay their way. We may be philanthropists at heart, but none of us can practice it and still eat. The veterinarian has not yet been able to obtain a satisfactory solution for these requirements. However, all of us who place the interest of the livestock industry first should join in an attempt to place animal health supervision in the hands of the trained veterinarian.

Secondly, assuming that the above requirements were met and that such services were eagerly sought by the livestock industry, would there be enough trained veterinarians to fill the needs of the animal industry. Throughout the 11 western states, there are approximately 3,200 veterinarians, of which some 1,600 reside in California. Of these 1,600 California veterinarians, 470 are engaged in specialized small-animal practice, 410 are considered general practitioners, and 53 in a specialized large-animal practice. The remainder are distributed among teaching and research, state and federal employment, etc.

Let's look at some figures on the numbers of veterinarians that might be needed to cover the field of preventive medicine adequately. Veterinarians engaged in specialized dairy practices have estimated that, as an individual practitioner, they can properly care for 3,000 cows. If then, the 900,000 dairy cows in California were so served we would require 300 specialized dairy-cattle veterinarians for that portion of the livestock industry. Add to this 500,000 cattle and calves on feed at any one time in California, and assume that one veterinary practitioner could properly care for 10,000 animals, 50 additional veterinarians would be needed for the feedlot phase of the beef cattle industry alone, without considering cow and calf operations. In addition, the California sheep industry is receiving insufficient veterinary service and an additional 25 to 50 veterinarians would be necessary to render optimum service to this portion of our livestock industry. It can readily be seen that about 400 veterinarians could be employed in preventive medicine practices in California. I seriously doubt that many of the 470 veterinarians engaged in small-animal practice could be induced to change to a livestock disease-prevention program, nor do I feel that a great many of our general practitioners could devote full time to such a practice. We must not forget that the general practitioner, living in areas where pets and small livestock operations comprise the majority of his practice, is very necessary to the industry. It seems to me therefore, that any immediate move toward a

state-wide disease-prevention program must consider procuring more veterinarians or shifting the practices of nearly one-fourth of our present veterinary manpower.

A third factor to be considered is the training of students for an over-all herd health type of veterinary practice. If we intend to call on the veterinary profession to conduct a preventive medicine type of practice, more emphasis should perhaps be placed on this during the formal training years. To be sure, our graduates now receive instruction in nutrition and feeds and feeding, but it has been proposed that additional training in these subjects would better equip our graduates by sharpening their cognizance of the nutritionists' problems, deepening their appreciation of the many interdependent forces between nutrition and health, and allowing them to be more conversant with every-day rations and their use.

Toward these ends the School of Veterinary Medicine, at Davis, has added to its curriculum a new course in advanced nutrition and feeds and feeding. Our colleagues in Animal Husbandry will teach this course, and we feel certain it will be a worthy effort.

Similarly, our graduates have received instruction and training in the application of disease-control measures on a herd-wide basis. Some of us feel that additional emphasis could profitably be placed on this type of training as well as on instruction leading to a stronger appreciation of the interrelations between disease prevention and husbandry and management practices. Toward these goals the School of Veterinary Medicine has under study the development of a course designed to teach these concepts.

These comments on veterinary training lead to still another factor to be considered. Graduating veterinary students have undergone a minimum of six years of intensive college training. Much of this time is spent in preparing him to diagnose disease, without which there can be no accurate treatment, no basis for intelligent disease prevention and control. He is the only member of the animal production team trained for this job.

I think we have come to the point where feed manufacturers, feed retailers, and allied industries should ask themselves a pertinent question and render an honest and critical answer. That question is, do you wish the veterinary profession to assume responsibility for the health of our meat and milk-producing animals, or do you wish to continue as you are going today and expand your activities in this field? I certainly cannot answer that question, but I believe the leaders in your industry are concerned over this question, and want the veterinary profession to assume the health responsibilities of our livestock industry. If such is the case, then I think we should take definite steps in the direction of coordinating the efforts of the veterinary profession, the feed manufacturers and retailers, nutritionists,

geneticists, and animal husbandmen, all of us who are associated with and perform a service for the livestock industry.

I would like to suggest that a forum be established to represent the livestock producer organizations; feed manufacturers and retailers; and the most pertinent research and applied fields in veterinary medicine, and animal husbandry. To such a forum could be directed the following questions:

1. Can the livestock producer spell out his animal health requirements and how he feels they should be met?
2. To what extent can the veterinary profession meet - present preventive-medicine needs of the livestock industry?
3. Will it be necessary to train more veterinarians than at present to provide optimum animal health service to the animal industry?
4. On a local level, can veterinarians and feed retailers devise a working formula whereby the livestock producer can use medicated feeds with the added service of veterinary consultation and advice?
5. Would it be profitable to seek the services of an unbiased agency to critically evaluate and make known the merits and limitations of feed medicaments?

Such a forum could also undertake the following tasks:

1. Function as a clearinghouse for new ideas and concepts from all sources to improve the efficiency of animal production.
2. Stimulate cooperation among all of us who are part of the livestock industry.

In conclusion, and to return to the original question, "Will Medicated Feeds Replace the Veterinarian?" My answer is "no." However, I sincerely believe the indiscriminate use of these feeds without intelligent integration into a complete disease-prevention program supervised by a veterinarian will greatly limit the level of animal health that could otherwise be attained. I further believe that disease prevention offers one of the most promising areas for a major improvement in animal production efficiency and that this improvement will come when we who serve the livestock industry learn to pull together rather than apart.

U. C. Aggies Picnic

The University of California Aggies will hold their 46th annual picnic day, April 18, on the Davis campus.

The huge open house will feature northern California's largest high school track meet, an hour-long parade with floats and bands, an aquacade, fashion show, sheep dog trials, band music and a horse show.

Each department on the campus will open its doors to visitors and display educational exhibits, with faculty members on hand to discuss problems and ideas with the public.

Dr. Jasper Tells of Activities

Dr. Donald E. Jasper, dean of the School of Veterinary Medicine at Davis, now on sabbatical leave, sends in a few notes on his recent activities.

He has attended a number of meetings, including Land Grant College, conference of military surgeons, meeting on sheep, annual D.C. Veterinary Conference, etc.



DR. DONALD E. JASPER

In addition to a number of talks and appearances at seminars, Dr. Jasper took a training course for state experiment station directors.

After a week spent at Plum Island he visited the Biological Warfare Laboratory.

Shrink in Cattle Shipment Cut in Half by Tranquilizer

A dramatic 50 per cent reduction in weight loss during shipment of cattle from range to feed lot has been credited to the injection of a tranquilizing drug used widely in veterinary practice.

In one recent trial, the drug Sparine was given intramuscularly to 73 comparatively light steers and 59 heavy ones. Groups of 30 lighter animals and 26 heavy ones were left untreated as controls. During an 18-hour trip by truck from Oklahoma, to La Junta, Colorado, the percentage of shrink in the animals treated with the drug was 2.6 and 3.04 respectively, as contrasted with 5.6 and 6.89 in the untreated cattle.

Prior to shipment it was noted that the two treated groups became quieter and less restive immediately following injection with Sparine, while the untreated controls remained nervous and hard to handle. As much as 36 hours after arrival of the cattle at the feed lot in La Junta, the treated groups were still noticeably quieter than the other and were markedly fuller at time of sale. All of the animals in the top-selling group had received the drug.

A product of Wyeth Laboratories, Sparine has been tested on more than 1,000 cattle in various field trials. Shrink during shipment was reduced in every test.

Twenty-year-old Claudia, daughter of Dr. and Mrs. Robert W. Ormsbee of Stockton, was recently married. A wedding reception was held in the Ormsbee home.

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as the addressee. Hence, he has but two things to do—write the check and furnish the postage stamp. Everything else is already done for him with this prefabricated innovation.

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These new billing units are mass-produced, die-cut and printed to your order in lots of 1,000 and up. They are precision made, fold squarely, and run through the typewriter with uniformity, requiring no adjustment or paper jockeying to straighten before typing.

Cost of these 3-way units (your statement and two envelopes) is about the same as—or less than—the cost of the usual statement form and one envelope. At this writing, delivery is made within 30 days of the date the order is accepted.

Within a month, every member of the California Veterinary Medical Association will receive a Quickie Bill in the mail. If you have any questions, or if you would like more complete information or a Quickie Bill sample before you receive yours on schedule, you'll get your answers by return mail if you contact either your Association office at 3004 16th Street, San Francisco 3, or Mr. Howard at 30 Melba Avenue, San Francisco 27, telephone JUniper 6-3110.

Regional Rabies Advisory Committees

In October and November of last year the State Department of Public Health met with the six regional rabies advisory committees to consider the question of redeclaration of counties declared to be rabies areas during 1957. During the course of the six meetings, approval was given the department for the redeclaration of 25 of the 31 counties initially declared rabies areas in 1957, as follows:

Region I—Los Angeles; Region II—Madera, Mariposa, Merced, San Joaquin, Tuolumne; Region III—Monterey, Ventura; Region IV—Napa, Santa Clara, Solano, Sonoma. Region V—Lake, Mendocino; Region VI—Amador, Butte, Colusa, El Dorado, Glenn, Nevada, Placer, Shasta, Sutter, Trinity, Yuba.

The above redeclarations were made effective December 2, 1958, and will extend through December 1, 1959.

Dr. Robert L. Chandler, Ukiah, was appointed a member of the Region V Rabies Advisory Committee for the year 1959.

The Los Angeles Milk Shed*

CHARLES H. OZANIAN, B.S., D.V.M.

Much interest and speculation has been forthcoming as to the projection of the Los Angeles milk shed. In the past several years some 150 dairymen have moved their operations to the Chino area approximately 45 miles to the east. The fabulous increase in land value, the antiquated premises, excessive property taxes, and the nuisance of subdivisions surrounding the dairy have prompted the dairymen to move to less expensive and sparsely populated areas.

In order to control the encroachment of the dairy industry in the Los Angeles County by subdividers, the dairymen have incorporated the existing area into municipalities, thereby formulating their own laws on land usage. The underlying difference between the City of Dairy Valley and any other small municipality is that the Dairy Valley charter provides for no subdivision of land under five acres. The purpose is to assure a continuous dairy industry in Los Angeles County. This area of nine square miles with a civilian population of around 3,500 encompasses over 300 dairies and some 65,000 cows. Similarly, the city of Cypress and Dairyland in adjacent Orange County have incorporated with the same purpose in mind, with a cow population of approximately 35,000.

Dairies operating with less than 150 cows have become a thing of the past. The marginal dairyman cannot survive in the present economic structure. As in other industries, dairies must produce in volume to compete with the high cost of production.

Cows in Los Angeles County produce approximately 11,000 pounds (5,000 quarts) annually or nearly double the national average of 6,162 pounds. This 11,000 pound production per cow is the highest average production per cow of any county in the nation. It is not uncommon for herds to average over 50 pounds butterfat monthly and in some instances 58 to 60 pounds have been attained.

Veterinarians have long been aware that a stable practice is built around small dairies. Larger dairies, in many instances, have laymen capable of handling the common veterinary problems. They have practically every drug and biologic available. The pertinent problem confronting the dairy practitioner is the mis-

use of these products thereby confusing the diagnosis for the veterinarian who is called to treat the case after all the drugs in the medicine cabinet have failed to produce results.

This situation has been in existence for many years. The veterinarian, whether he likes it or not, must be aware that home treatment is here to stay and that any criticism is detrimental to his practice and his relationship with his client. A more positive approach to the problem can result in gaining the confidence of the dairyman. Rather than bluntly tell the dairyman that he is stupid or in error on his use of Penicillin, for instance, as a blanket curative measure, the suggestion that the apparent causative organism is resistant to Penicillin and another drug is indicated in this instance is a more tactful approach. He would in many instances be more cautious in treating the ensuing cases and seek the veterinarian's advice.



CHARLES H. OZANIAN

Mastitis

The transition from hand milking to machine milking occurred some 20 years ago. Prior to 1938 when milkers were abundant, hand milking was the rule in most dairy establishments. The milkers became unionized, thereby demanding higher salaries and shorter working hours. Because of the increased labor costs, dairymen installed mechanical milkers. These dairies that operated with milking machines experienced a continuous problem in mastitis. The machines were condemned and removed in favor of hand milking in hopes of solving the mastitis problem. There was a period of confusion and unrest among milkers and dairymen alike. In many instances, machines were installed and removed several times the same year.

With the constant promotional and educational program by the manufacturers of the proper use of milking machines, mechanical milkers became a practical adjunct to the dairy operations such as is enjoyed today.

Many dairymen who engaged in the program of testing, segregation, and treating positive cows were soon discouraged because of the re-occurrences of mastitis and the endless number of new cases developing. Practitioners too have been discouraged with the end results of the mastitis control program, per se.

Recently, re-emphasis has been directed to the relationship of mechanical milkers and the mastitis problem and its detrimental effect on mammary tissue. It behooves every dairy practitioner to thoroughly become familiar with the mechanics and the operation of milking machines if he is to cope with herd mastitis control. . . (May I direct your attention to the work on this subject by Dr. O. W. Schalm & Associates of the University of California as re-

*Presented at the Annual Meeting of the Arizona Veterinary Medical Assn., Yuma, Arizona, December 9, 1958.

ported in the A.V.M.A. Journal of October 15, 1956, and November 1, 1958.)

However, many herd problems in our practice have been attributed to the operation of the milking equipment. The following are two typical cases.

This dairy barn was built in 1954 to accommodate 120 cows. During my monthly visits to do pregnancy diagnosis the owner passively complained that mastitis had become a problem in his herd. The cows that were examined had flabby udders and viscous milk. About one-half of the cases presented gargety milk, but were void of acute symptoms. The temperature and appetite were normal in these cows. At this point it was suggested that the representative of the machine manufacturer be consulted to determine the current condition of the equipment. The vacuum, pulsators, rubber linings, etc. were declared to be faultless according to the dealer. When laboratory tests were suggested, the owner assumed a "wait and see" attitude.

In desperation, months later, the owner specifically informed us that his mastitis problem had not subsided and that he had consigned some 100 cows to slaughter. This time the problem was dropped into our lap thereby giving us a free hand. It would naturally be assumed that the equipment was properly installed and functioning, especially when the authorized dealer rechecked the equipment.

With a pressure gauge, we found that the vacuum varied in different parts of the pipe line. At the inlet there was 17 inches of vacuum and it declined progressively to 11 inches at the vacuum release. The pipe line was installed in a U shape around the barn. Corrective measures consisted of eliminating the U line and installing a continuous line such that both sides of the barn would have individual inlets with a common release at the far end. This created a uniform vacuum release at any given stall in the barn. Mastitis subsided and the problem resolved itself.

In another herd, micro organisms were suspected to be the causative agent. The symptoms were those of acute mastitis. On subsequent laboratory tests, yeast was isolated in this herd. Treatment was of no avail. The contributing factor of mastitis was finally attributed to alterations made in the pulsator by the dealer. The size of the air intake port was increased to "permit full atmospheric pressure in the outer chamber of the teat cup to be attained more quickly." This alteration caused rapid collapse of the liners.

Various case histories can be recited indicating faulty installations and equipment. Vacuum pumps of insufficient size, inconsistent pipe installations leading from pump to stalls, too many vacuum releases or improper weights on releases, old worn out teat liners, worn out pulsators, etc. all contribute to herd problems.

One would be remiss not to emphasize the milkers responsibility in the prevention of

mastitis. Machines are no better than the man who uses them. Many mastitis problems develop because of the mis-management of milking machines. Lesions on the end of teats, for instance, are caused primarily because machines are left on too long unattended. Crawling of teat cups injure the teat lining because machines are not removed immediately upon the completion of milking. Milkers often have mastitic problems with a given quarter of the entire milking string because of some negligent procedure.

The emphasis placed on the mechanics of milking machines should by no means be construed to under-estimate the primary cause of mastitis. The isolation of the causative organism, segregation, and the specific therapeutics based on the sensitivity test is still of paramount importance.

Infertility and Reproduction

There is probably no field of endeavor that produces more positive and satisfying results to the dairy practitioner than in the field of bovine reproduction. It is not only a challenge to the veterinarian, but the client can readily evaluate the results. The livestock industry is, of necessity, vitally interested in this phase of veterinary medicine. Successful management, which is interpreted in terms of dollars and cents, necessitates a continuous calf crop in a dairy herd. It means that every month, approximately 10 per cent of the milking string must reach the end of their physiological lactation period and be replaced by fresh cows.

A competent clinician must not only recognize abnormal deviations of the genitalia, but also be accurate in the diagnosis of pregnancy. Too often, inaccurate diagnoses are made and the client immediately postulates that the veterinarian is incompetent in veterinary medicine, per se.

The diagnosis and the duration of pregnancy in cattle is determined by the form, consistency and the transverse diameter of the pregnant horn plus the changes in the size and pulsations of the middle uterine artery, with the minimum of emphasis of the actual palpation of the size of the fetus. The diameter of the developing cotyledons are also diagnostic in determining the duration of pregnancy. The wall of the gravid uterus has a definite tone and is thin as compared to the uterus that contains pus. In endometritis, the uterus is thick walled and bi-laterally symmetrical. When lymph is present, the uterine walls may be thin, as in pregnancy, but flabby and fluid occupies both horns.

The middle uterine artery is a valuable guide in diagnosing pregnancy. One must be cautious not to confuse the enlargement of the artery in a case of chronic metritis with a three-month pregnancy. A decrease in the size and pulsation of the artery prior to parturition is indicative of a major interruption

(Continued on page 23)

Laboratory Notes

From the Department of Clinical Pathology, School of Veterinary Medicine, University of California.

The Examination of Cerebrospinal Fluid

The minimal examination of cerebrospinal fluid should always include the following tests: (1) Physical examination (color, sediment, turbidity, pellicle); (2) Cytological examination (total cell count); (3) Chemical examination of protein (Pandy's test).

In the presence of a cloudy fluid, increased cell count or specific clinical symptoms (e.g., meningeal syndrome), additional procedures may be indicated: (1) Differential cell count; (2) Bacteriological smears and cultures; (3) Protein Tests: quantitative protein and Nonne-Apelt test; (4) Glucose; (5) Chloride; (6) Non-protein nitrogen or urea; (7) CO₂ combining power; (8) Calcium; (9) Sodium; (10) Potassium; (11) Magnesium; (12) Inorganic phosphorus; (13) Uric acid; (14) Cholesterol; (15) Lactic acid; (16) pH; (17) Specific gravity.

Physical Examination

Color: Normal cerebrospinal fluid is clear and colorless, provided no hemorrhage has occurred at time of puncture. Xanthochromia (a clear yellow color) may result from a previous hemorrhage into the subarachnoid space. The color appears to be due to free bilirubin (indirect van den Bergh reaction) which has resulted from the chemical breakdown of heme within the cavity. The intensity may be expressed in terms of mgs. of bilirubin or by the icteric indices. If blood is present in the subarachnoid space for a few hours, the supernatant fluid following centrifugation will exhibit a clear yellow color. In a cerebrospinal fluid containing blood, this observation is of value in differentiating between pathologic hemorrhage into the fluid and traumatic hemorrhage occurring at the time of puncture from injury to dural vessels. In advanced icterus, particularly of the extensive obstructive type, varying amounts of bilirubin may be present in the cerebrospinal fluid. There appears to be less diffusion of bilirubin into the subarachnoid space in maturity than during the first few weeks of life.¹

Sediment: Normal fluid contains no sediment such as commonly occurs in cases of meningitis.

Turbidity: Normal fluid is clear. In acute meningeal infections, the fluid may be slightly cloudy or even appear to be pus. The presence of hemorrhage from trauma occurring from puncture will produce a turbid fluid.

Pellicle: A fibrin net containing blood cells may result from some meningeal reactions in the cerebrospinal fluid upon standing. In suppurative meningitis, the pellicle forms quite rapidly.

Specific Gravity and pH: The specific gravity varies between 1.003-1.008 for the various species. The reaction is slightly

alkaline, pH 7.4-7.6; and can be measured with litmus paper.

Cytological Examination

Total Cell Count: Cell counts should be made as soon as possible after drawing fluid since disintegration of cells occurs rapidly. Cells encountered in normal fluids are mainly small lymphocytes with round or slightly oval nuclei, rarely large mononuclears and histiocytes are seen.

Procedure: Draw Turk's solution up to the 0.5 mark and the spinal fluid to mark 11 in a white cell counting pipette. Mix thoroughly. Blow out a few drops before filling the counting chamber. Count all the cells in the entire ruled area which represents nine fields. Divide by 9 and multiply by 10 to obtain the number of cells per cu.mm. To correct for the dilution, one may multiply the final result by 20 and divide by 19.² If there is contamination of the fluid with blood, a total red and white blood cell count should be performed. Since the average ratio of red blood cells to white blood cells is 5,000,000/10,000 or 500/1 in normal blood, any relative increase in white cells can be measured.

Turk's Solution—Glacial acetic acid . . 1 ml.
Distilled water 99 ml.
Add a few drops of alcoholic gentian violet and filter twice.

Differential Count: Centrifuge the sample if cells are under 500 per cu. mm. Dried smears can be made by using an inoculation loop of the sediment. Methylene blue, Wright's or Giemsa stains are used similarly as in blood films.

A wet-mount coverslip method can be used by adding 3 drops of alkaline Loeffler's methylene blue in 1 ml. of cerebrospinal fluid or sediment. A medium-sized drop is placed on a slide and a coverslip applied. Examine in 5 minutes. Less cellular distortion, disintegration and artefacts are observed in this method than in the dried film methods.

Bacteriological Examination: If any signs of turbidity or abnormality of the fluid are encountered, bacteriological studies should be made. Routine methods are satisfactory such as Gram's stain, Loeffler's methylene blue, and the Ziehl-Neelsen acid-fast procedure for tubercle bacilli. Whole blood and plain agar should be inoculated as soon as possible upon receiving the fluid. The examination of the sediment for trypanosomes includes methyl alcohol fixation for 5 minutes and subsequent staining with giemsa solution.

Interpretation of Cell Counts and Differentials: Increased cell counts (pleocytosis) are

due to inflammatory lesions of the brain, spinal cord, and meninges.

1. Tumors—An increased count is nearly always found in cerebral tumors, but no relationship exists between the cell count and the type or location of the tumor. The cell type may be helpful.

2. Suppurative meningitis—Acute processes will show great numbers of neutrophils.

3. Chronic infections and toxic conditions—usually an increase in small and large lymphocytes.

4. Brain abscesses—increase in neutrophils.

5. Localized chronic or degenerative lesions—show a normal to slightly elevated white count.

6. A rising neutrophil percentage in the differential count is a sign of a progressing lesion.

7. A rising lymphocyte percentage in the differential count may be a favorable prognostic sign.

8. High neutrophil counts indicate the presence of suppurative lesions.

Chemical Examination

Proteins: Total CSF protein levels in most domestic animals are between 12-40 mg. percent. Since protein levels are quite low, methods employing the biuret reaction should be viewed with caution. The method of choice for total protein analysis is that of Johnston and Gibson.²

Pandy Method. Place one ml. of Pandy's reagent (10 gm. carboic acid crystals in 100 ml. of water) in a test tube. Add a few drops of CSF. If upon shaking a turbidity develops, globulins are present. Report from 1 plus to 4 plus.

Nonne-Apelt Method. Place 1 ml. of Nonne-Apelt reagent (a filtered solution of saturated ammonium sulphate) in a test tube and stratify 1 ml. of spinal fluid on the reagent. A white ring at the point of contact indicates the presence of globulin. Report from 1 plus to 4 plus.

Interpretation of Protein Values: It has been observed by many⁴ that the protein and chloride values in cerebrospinal fluid are compatible qualitatively with Donnan's law. As predicted, normal cerebrospinal fluid contains a higher chloride concentration than plasma and this difference is reduced as the protein concentrations in the serum and cerebrospinal fluid approach one another in disease. The chloride ion, however, is definitely too highly concentrated in the cerebrospinal fluid to warrant any true Gibbs-Donnan equilibrium. It would appear that both Na and Cl are actively secreted into the fluid.

Increases in protein levels in cerebrospinal fluid are found chiefly in diseases in which inflammation of the barriers between the plasma and cerebrospinal fluid causes a change

in the permeability to protein. Inflammation involving the choroid plexus, meninges, and any cerebral endothelial cells causes increasing amounts of albumin, globulin and fibrinogen to enter the subarachnoid space. Non-inflammatory conditions such as uremia, pneumonia, convulsive states (epilepsy), which alter the capillary permeability, and conditions such as brain or spinal tumor, which cause elevations in subarachnoid tension, may increase the protein content in the fluid. In suppurative meningitis, the total protein level may be as high as 2 gm. percent and may follow the gradual increase in cell count. In serious-meningitis (irritation to the meninges as in pneumonia, uremia or toxemias) the protein elevation may be slight and only observed by exacting quantitative methods rather than Pandy's test or Nonne-Apelt procedures. Convulsive states as found in distemper, hypocalcemic tetany and epilepsy produce transient increases in protein in the fluid. Increased protein levels are a common finding in myxedema.

Glucose

The glucose concentration in the cerebrospinal fluid is dependent upon various factors:

1. The blood sugar level;
2. The presence or absence of glycolysis;
3. The selective permeability of the blood-cerebrospinal fluid barrier.

The cerebrospinal fluid glucose concentration is usually 60-70 per cent of the blood glucose level.¹ Normal values are between 40-80 mg. percent in most species. If glucose were freely diffusible, the concentrations would most likely be nearly the same. It has been suggested that this difference might be due to consumption of the glucose for energy by the cells, but a more likely explanation is that glucose is not in equilibrium between the two fluids. Glucose determinations should be performed upon both the blood and cerebrospinal fluid. The glucose content of the ventricular and cisternal fluids is usually slightly higher than that of the lumbar spinal fluid. Hyperglycorrhachia (increased glucose in the cerebrospinal fluid) occurs commonly in diabetes mellitus and is related in concentration to the level of hyperglycemia present. Hyperglycorrhachia may be found in encephalitis as opposed to hypoglycorrhachia in suppurative meningitis. In bacterial meningitis, glycolysis from both bacterial and white cell metabolism may remove virtually all of the reducing substances.

Glucose determinations should be performed by the method of Somogyi² which measures mainly glucose per se and not other reducing substances.

Chloride

Normal chloride levels vary in domestic animals between 650-850 mg. percent. Active

forces in addition to a Donnan equilibrium effect most likely account for the high values. Chloride levels are decreased in meningitis in the presence of increased protein levels. Hypochloremias resulting in such syndromes as protracted vomiting and in advanced pneumonias are reflected in the chloride levels in the cerebrospinal fluid. Spinal fluid chloride has been reported to increase occasionally in advanced nephritis but is of no diagnostic significance. The chloride level is usually found in clinical cases to have an inverse relationship with the total protein values.

Chloride determinations on cerebrospinal fluid may be performed by the method of Schales and Schales.⁸

Non-Protein Nitrogen and Urea

Most all of the N.P.N. constituents of blood are also found in the cerebrospinal fluid. Their relative concentrations differ from that found in blood due to their individual particular diffusibility. Urea exists in nearly the same concentrations as found in the serum due to its great diffusibility. Flexner⁷ studied the distribution ratio of Cl, Na and urea between the cerebrospinal fluid and blood plasma during fetal life in the pig. Prior to 40 days intrauterine Cl, Na and urea were equal between both fluids; however, during the next 3 days, the cerebrospinal fluid changed its composition in respect to these substances and progressed from an ultrafiltrate to a secretion. In experimental uremia in cats, Cockrill⁹ found that the concentration of urea in blood and cerebrospinal fluid increased at about the same rate, with the cerebrospinal fluid urea always slightly lower in concentration.

Uric acid has been reported in humans¹ to be elevated in all forms of meningitis. Most all of the non-protein-nitrogen group increase in proportion to their concentration in the blood. At present, little or no practical importance can be attached to their determination.

CO₂ Combining Power: Cerebrospinal fluid, upon standing and when exposed to air, will lose CO₂ and increase in alkalinity. The alkali reserve as measured by the CO₂ combining power in most domestic animals ranges between 40 and 65 vol. percent. In fluids from suppurative meningitis, the increased acidity may be due to the presence of lactic acid.

Lactic Acid: Normally, no lactic acid is present in the cerebrospinal fluid and if normal fluid stands at room temperature, glycolysis of glucose produces this acid. The lactic acid concentrations are increased whenever the glucose levels in CSF are decreased in such conditions as bacterial suppurative meningitis.

Sodium, Potassium, Magnesium, Calcium and Inorganic Phosphate: Recently, Greenberg and co-workers⁶ have injected an array of isotopically labeled compounds into dogs, the

fluid collected at intervals and their relative rates of appearance recorded: $K > Na > Br > Rb > Sr > Po_4 > I$. The determination of these ions as far as is known have no practical clinical value. Sodium of the cerebrospinal fluid appears to be in simple equilibrium with the blood serum, while potassium seems to be maintained at a higher concentration in the plasma.¹ Magnesium is concentrated by secretory or accumulative activity in the cerebrospinal fluid and is usually about 20 percent higher in concentration than in the plasma. Calcium, on the other hand, appears to be distributed between cerebrospinal fluid and plasma by simple processes of equilibrium. The cerebrospinal fluid calcium content appears to be equal to plasma "diffusible" calcium and increases only when protein bound calcium enters the fluid in pathological states. Inorganic phosphate content of cerebrospinal fluids is usually about 40 percent of its concentration in the blood serum. It increases in all forms of degenerative lesions involving the central nervous system. All of the ions mentioned above approach concentrations similar to those of plasma when pathological processes affect the blood-cerebrospinal barrier.

Cholesterol: Cholesterol levels in domestic animals vary from no cholesterol to minute traces. Increases will occur in brain abscesses, tumors, meningitis and any hemorrhages involving the central nervous systems. Normal values in horses have been recorded up to 0.65 mg. percent.¹⁰

The use of a few simple procedures such as the physical examination, differential and total cell counts, and a simple test for the CSF protein level is usually adequate in routine clinical practice. The choice of certain tests which can be interpreted on the basis of past clinical experience is most desirable.

C. E. CORNELIUS.

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Los Angeles Milk Shed

(Continued from page 19)

in gestation, i.e., fetal death or the beginning of mummification of the fetus.

Efficiency in pregnancy diagnosis is acquired through practice and repetition, preferably with reference to available breeding records. Efficiency can be acquired by (1) examining a series of known normal non-gravid uteri; (2) palpating cows that are springing, and (3) "slipping" the fetal membranes of six-week pregnancies.

The etiology of infertility may be classified as physiological or pathological. Since more than 90 per cent of the infertility cases in healthy herds are due to physiological factors, this phase of sterility warrants the most emphasis. In our experience, 70 per cent of the problem cows can be corrected by manual manipulation of the ovaries and the massaging of the uterus, preferably during the dioestrus period. In this phase of the oestrus cycle, the changes of the genitalia are regressive, and the corpus luteum is readily detachable without serious injury to the ovary. It is advisable to massage the uterus and the opposite ovary before removing the corpus luteum at which time pressure should be exerted on the ovary to prevent possible hemorrhage.

In the removal of the yellow body, care and tenderness is necessary, otherwise injury to the ovary occurs. Undue pressure and "plier grips" must be avoided. With the index finger and thumb the corpus luteum is gently massaged until the body detaches itself from the ovarian tissue. The ease with which the corpus luteum is removed depends on the stage of the oestrus cycle. Between the seventh and fourteenth day following oestrus is the most desired period. This, of course, is impractical in routine herd examinations.

Many abnormalities of the ovaries can be detected upon palpation such as retained corpus luteum, corpora lutea on both ovaries, cystic corpea lutea, and cystic graffian follicles. All of these conditions can be corrected by exerting slight pressure on the ovary and removing the abnormality. For an efficient and intelligent approach to the problem at hand, accurate breeding records of each individual case are necessary. The practitioner can then, and only then ascertain the condition of the ovaries at a given phase of the oestrus cycle.

In the process of manipulation, it is conceivably assumed that the clinician ascertains the presence of any pathology of the genitalia—vagina, cervix, uterus and fallopian tubes.

In any therapeutic approach to the disorders of reproduction, the clinician must also take into account the essential role which the endocrine glands play in the normal reproductive process. Under no circumstance should endocrine therapy be instituted before a thorough physical examination of the genitalia is made. The practitioner should also be cognizant of the fact that there is a wide range in the



Photo by William A. January, S.F.

The San Francisco Veterinarians served at the recent Golden Gate Kennel Club Dog Show in San Francisco. Above, Dr. Roger Burr, vice-president, examines Gayle Smith's Dalmatian.

sensitivity of individual animals to the various endocrine products.

Many clinicians depend solely on hormone therapy to alleviate sterility problems. A common error in endocrine therapy is that of employing hormones when no deficiency exists. Therefore, we should make our diagnosis more specific than to conclude that the "cow shows no estrum" or the "cow presents irregular heat periods." Perhaps the cow exhibiting no oestral period is already pregnant, she may have developed pyometra, the fetus may have become mummified, or, as is commonly the case, a persistent corpus luteum may exist. Conversely, we have all experienced the phenomena of regular or irregular oestrus in advanced pregnancy.

It would be apropos to briefly review the mechanism which regulates the oestrus cycle and its influence to the ovaries. The Anterior Pituitary Gland, among other functions, produces two gonadotropic hormones, the Follicle Stimulating Hormone (FHS) which stimulates the development of the ovarian follicle, and secondly, the Luteinizing Hormone, (LH); its mode of action is luteinization of the follicle.

The ovary has a dual purpose, the production of the ovum and an endocrine function. Soon after ovogenesis occurs, there is formed about them the structure known as the

Graafian follicle. As the Graafian follicle matures and develops considerable tension it finally bursts at the ovarian surface, the ovum is washed out with the liquor folliculi and is ready for fertilization. In a few cases the ovum fails to be liberated when ovulation takes place and is held in foldings of the wall as the follicle collapses. This is one of the reasons why bovines pass over a heat period without conceiving. The cyclic development of the Graafian or ovarian follicles plays a very important part in the reproductive phenomena. This process of rhythmic development and regression is continuous throughout sexual maturity whereby one to five follicles normally develop to their maximum size during heat. Usually only one of the follicles ruptures, sometimes two, and rarely three.

The Graafian follicle secretes oestrin, its stimulation being derived from the sex-stimulating principle of the anterior pituitary gland, (FSH). The FSH factor is responsible for the follicle to mature and rupture. Many investigations point to the fact that the continued injection of oestrin into the normal female results in the ovary remaining small and fibrous. This is postulated to be caused by inhibiting or checking the activity of the pituitary gland from the producing (or releasing) the FSH.

The corpus luteum is a temporary endocrine gland that forms from the wall of the follicle immediately following ovulation and is also under the influence of the anterior lobe of the pituitary gland. Its action consists of secreting the hormone, progesterin, which inhibits further oestral cycles, particularly following conception.

The fetal membranes also assume the function of an endocrine organ. The placental gonadotrophins are excreted in high concentrations in the urine of pregnant women and the blood of pregnant mares. These products have been designated as Anterior Pituitary-like (APL) hormones and are a source of both Follicle Stimulating (FSH), and the Luteinizing Principles (LH).

The interrelationship between the various endocrine glands, the anterior pituitary gland, ovaries, and recently, the discovery of the relationship of the thyroid and adrenal glands add to the complexity of reproduction.

From the foregoing discussions, it is obvious that a clinician cannot calculate the minute quantities of the exact hormone necessary to balance the chain of reactions that nature provides. The most desired approach to hormone therapy is to refrain from its use until at least a second examination of the animal is made at a subsequent date.

Atrophy of the ovaries is a condition characterized by small, infantile ovaries which are non-functional. This condition should not be confused with the latent or "resting" stage in the second week of the oestral cycle. This condition is particularly common among first calf heifers. In addition to a thorough massag-

ing of the ovaries and uterus, treatment consists of hormone therapy, the Follicle Stimulating Hormone (FSH) at a later date. The synthetic hormone, Stibestrol, will produce external manifestations of heat, but it is questionable whether it stimulates ovulation. It is therefore, imperative to wait for the second heat period before breeding to avoid the assumption that the animal has conceived.

The repeater cow is the most prevalent and is the contributing factor for the abnormally long lactation periods, hence, a marked decrease in the calf crop. Improper management plays a major role in many incidences. The "build up" or high incidence of open cows, due to the insufficient number of bulls to serve or the over-use of bulls, becomes geometrically aggravated in due time. The mere addition of an extra bull in the herd has corrected many herd breeding problems. Artificial insemination, of course, eliminates this situation.

Other obvious causes of repeater cows are, failure of the ovum to reach the fallopian tube, pathology of the genitalia, obstruction in the fallopian tube, and failure to detect the bulling cow. Repeater cows that skip several heat periods may be attributed to undetected abortions, resorption of the fetus, or the mummification of the fetus.

In many cases, the repeater cow is deficient in ovarian oestrogen. In our practice we supplement Dienestrol which is a non-steroid synthetic oestrogen. This provides the necessary stimulus for the pituitary and the maturing follicle to induce ovulation and the formulation of the corpus luteum when administered 3-4 hours prior to insemination.

It is more than a conjecture that first calf heifers conceive with difficulty. Physiologists render a supposition that the stress of the initial milk production upsets the intricate hormone balance of the mechanism of conception.

Nymphomania creates a serious problem in some herds. This condition is in need of much research as to the etiology and effectual treatment in problem cows. Some herds are plagued with cystic ovaries in larger numbers at various times of the year and then the condition abruptly ceases.

Cystic ovaries are caused by the failure of the follicles to mature and rupture in the physiologically normal manner due to the lack of the luteinizing factor. The exact cause of this hormone or estrogen imbalance is not known.

The practical approach of this problem is to educate (if that is possible) the dairyman to instigate treatment at the onset of the symptoms. Periodic weekly treatments of rupturing the cysts complimented with chorionic gonadotrophin therapy (Luteinizing Factor (LH) corrects the condition in the majority of cases. Many nymphomania cases fail to respond to treatment. In many of these cases aplastic ovaries or the inability to develop into new tissue is encountered. This is said to be caused

by the adrenal cortical hyperactivity in which case the prognosis is poor. Many cases of chronic cystic ovaries have been found to spontaneously recover following the cessation of lactation and the animal retired into the pasture.

Progesterone or corpus luteum extract was used in some thirty cases of nymphomania which failed to respond to the conventional treatments. The results were discouraging in every case. Direct infusion of chorionic gonadotrophin into the cysts following the aspiration of the cystic fluid have also proved ineffective. However, only stubborn cases received this mode of treatment.

Many Gonadotrophins are available on the market. Veterinarians often compare notes of the therapeutic value they receive from the various products. A survey of these hormones according to the manufacturer, trade name, and derivation is of interest.

Jen-Sal—(*Chorionic Gonadotrophin)—Human pregnant urine. Prepared in 2500 I.U. 10cc vials. Dosage: 2500 units I.V.; 10,000 units I.M. or Subc.

Upjohn—(*Chorionic Gonadotrophin)—Human pregnant urine. Prepared—5,000 I.U. Dosage: 1,000—10,000.

Massengill—(*Chorionic Gonadotrophin)—Human pregnant urine. Prepared—5,000 I.U. Dosage: 10,000 I.U. I.M.

Squibb—(*Follutein)—Human pregnant urine. Prepared 1,000 I.U. - 5,000 I.U. - 10,000 I.U. Dosage: 10,000 I.U. I.M.

Jen-Sal—(*Gonadovet)—Anterior pituitary gland Equine. Prepared—5cc/125 assayed rat units of gonadotrophin. Dosage: 5cc I.V.

Armour—*PLH (Pit. Luteinizing Hormone)—Anterior Pituitary glands of animals. Prepared—5cc vials 25mg. Dosage: 5cc 25mg.

Squibb—(*Gonadotrophin)—Equine Pituitaries. Prepared—5cc or 500 rat units. Dosage: None given (assume above 500 units).

Abbott—(*Vetrophin)—Sheep Pituitary gland. Prepared—5 & 10 rat units; (10 rat units equivalent to approx. 200,000 I.U. of Human preg. urine, gonadotrophin). Dosage: 10 rat units I.V.

*Trade name.

National Livestock Loss Prevention

A nation-wide drive is being launched against a livestock problem which now costs American farmers upwards of \$30,000,000 a year.

The condition, known as "pneumonia-enteritis complex" in calves, causes such heavy losses that it has been chosen as the number one target for National Livestock Loss Prevention Year.

Actually, the problem is caused by two diseases, pneumonia and scours. Either is serious in itself, but when both strike at the same time the losses are greatly increased. The disease usually strikes calves which are five days to 3 months old.

Dr. and Mrs. Richard B. Barsaleau, Visalia, had the nicest of Christmas presents—a new daughter. Congratulations!

Livestock Diseases Reported

E. F. Chastain, D.V.M.

Tabulation of Diseases Reported to the State Bureau of Livestock Disease Control during the period September to December, inclusive, 1958.

		Sept.-Dec. Incl. 1958		
		North	Central	South
Actinomycosis				1
Anaplasmosis		2	13	2
Anthrax,	Cattle	2	3	
	Sheep			
Blackleg		1		
Bluetongue		4	1	6
Bovine Bacillary Hemoglobinuria				
Coccidiosis,	Cattle			
	Sheep			
Contagious Ecthyma, Sheep			2	
Cysticercus Bovine		4	4	46
Equine Encephalomyelitis		1	1	4
Equine Infectious Anemia				
Equine Virus Abortion				2
Erysipelas,	Sheep			
	Swine	1	1	
Foot Rot,	Cattle			
	Sheep	3		
Hydroplasia, Lambs				
Hog Cholera		3	1	3
Infectious Atrophic Rhinitis		2	1	
Johnes Disease,	Cattle	1	1	
	Sheep			
Leptospirosis,	Cattle	19	151	33
	Horses	1	3	
	Sheep			
	Swine	1	3	1
Listeriosis,	Cattle			
	Sheep			
Malignant Edema		1		1
Malignant Catarrhal Fever				
Mucosal Diseases		1		
Paratyphoid,	Cattle	6	10	10
	Horses		1	
	Sheep			
	Swine	1	4	1
Psoroptic Scab,	Cattle			
	Sheep			
Rabies, Bovine				
Rhinotracheitis			2	19
Sarcoptic Scab,	Cattle			
	Swine			
Scrapie				
Sporadic Bovine Encephalomyelitis				
Transmissible Gastro Enteritis, Swine				
Vesicular Exanthema				
Virus Diarrhea,	Cattle			1
Vibrio fetus,	Cattle		3	3
	Sheep	1		

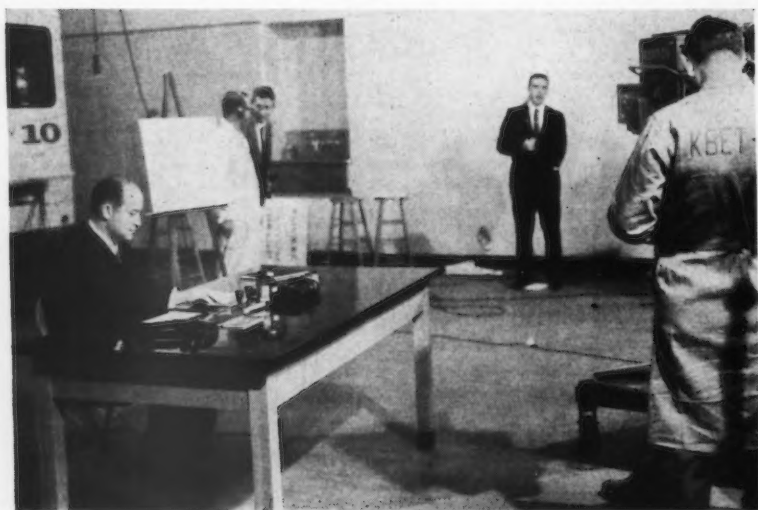
Highlights—MIDWINTER CONFERENCE



STATE SENATOR WALTER W. STIERN, left, is congratulated by CVMA PRESIDENT RICHARD L. STOWE, upon being elected to the highest state office ever held by a member of the association.

A near-record attendance at the conference of the CVMA, held at the University of California, Davis, during the standing program goes to Dr. Houchens. Dr. Kendrick, co-chairman, and Dr. Meyer. Dr. Charles and Dr. Court. The presentation was the Clinical Pathology. Members of the School of Veterinary Medicine. Demonstrations brought many of the conference. Poultry Disease Conference. Held in sections on large and small

* A report of the Conference will appear in March.



DR. GEORGE H. MULLER discusses Dermatology Aids during closed circuit TV. Moderator is DR. R. M. CELLO.



DR. and MRS. GEORGE HART. President's Banquet, December 1964, at the Veterinary School.

Below: Timing Tim with DR. R. M. CELLO. DR. R. M. CELLO, co-chairman of the winter



ENCE, Davis, February 2, 3, 4, 1959*

the annual Midwinter Conference in the School of Veterinary Medicine, Davis. Credit for the outstanding program goes to Dr. Houchin, chairman; Dr. J. W. Meyer. Moderators for closed circuit television were Dr. J. W. Meyer and R. M. Cello. An innovative course, conducted by members of the faculty, was in veterinary medicine. The lectures and demonstrations were excellent. The Western Veterinary Conference was held in conjunction with the annual Midwinter Conference.

March-April Journal.



VINCENT S. DALSIMER, left, Director of the Department of Professional and Vocational Standards, is welcomed to his new post by President-elect CHARLES H. OZANIAN, CVMA. Mr. and Mrs. Dalsimer were head table guests at President's Banquet, Hotel El Rancho.



GBART attended the conference as Dean Emeritus of the School of Veterinary Medicine.

ing Tim with phone, is Dr. J. W. KENNERLY, Moderator of the Midwinter Conference.



DR. CHARLES H. REID was moderator for the large animal closed circuit TV. At right is DR. C. H. BURGER.



A Visit To Europe

ERNEST H. HOUCHIN, D.V.M., *Practitioner, Ventura*

Writing about a trip to Europe such as we took would take up many pages. We covered fifteen countries in rather a rapid manner. I think the only means of transportation available in Europe that we didn't use was the bicycle. Altho rapid at times we did see and do a great deal.

We left Los Angeles on August 20th on SAS with two objectives in mind. First to see all we could in two months and record it on film. Second, to attend the British Veterinary Congress on the Isle of Man held Sept. 21st. I was not too interested in institutional operations and research so I never visited any colleges. I did visit several private veterinarians.

We landed in Copenhagen after nineteen hours travel over a vast waste land and ocean from Los Angeles. The trip over Greenland and Iceland by midnight sun was one of the most spectacular sights we have ever seen. The ice floes, icebergs and floating ice around Greenland in the midnight sun was a beautiful sight never to be forgotten. At 21,000 feet I was able to get some interesting pictures of it all. The sun set at 12:05 AM and the red reflection over the snow and ice was beautiful.

The personnel on SAS really try to make the nineteen hours as comfortable as possible. They had a ready smile and willingness to help or answer questions. We landed in Copenhagen about 4:00 AM rather sleepy and tired, so we spent the balance of the day resting.

For the next four weeks we traveled thru twelve countries of Western Europe. We stopped over night in the smallest principality of Europe, San Marino, in Northern Italy. The Count who owns the hotel has a real racket. He puts out a drink he calls Muscato wine. It was apple cider, carbonated, and it was impossible to buy other wine or drinks until you bought a quart of his special for \$1.50. It was a worth while stop in spite of the Muscato deal.

We went as far south as the Isle of Capri. The much publicized blue grotto was very interesting to see. It took us one-half hour to get off the boat and into a row-boat to go into the grotto. We spent five minutes going into and out of it, so it is a rather small hole in the rock. Capri is greatly over-rated. Compared with Catalina Island off the coast of California, Catalina has far more to offer for the tourist. The town of Sorrento, across the bay from Capri, was a pleasant and quiet town. They make inlay furniture and jewelry boxes. It was fascinating to see them being made all by hand. Believe me, they are artists with a coping saw.

Italy as a whole was a picturesque country. Venice would be far more interesting and certainly more pleasant gondolaing if it wasn't in the sewage system. My wife has always yearned for a gondola ride with music. We

landed in Venice on her birthday so we took the gondola ride to celebrate. The odor was terrific and I think she has lost all interest in gondolaing in Venice, with or without music. However, Venice was interesting in spite of the odor and the large number of beggars on the streets.

The prosperity of Italy varied a great deal from one locality to another. It takes initiative to prosper and I think that covers the cause for the condition some parts of Italy are in today. Along the Italian Riviera was certainly a mecca for loafing. At Nice and Monaco the weather was just right and the little gals in their bikinis didn't detract from the beach pleasantries. Monte Carlo can take your money as fast as Las Vegas or Reno, believe me.

We didn't spend as much time at the fair in Brussels as most people did. After one night and a full day, our feet gave out. We visited a good many buildings and enjoyed all of them. I think that everyone has asked me how the Russian and United States buildings compared. All countries but Russia depicted the life and activities of their countries. The Congo gave the history from savagery to the present day of higher education and the cleaning up of disease. The United States showed the simple life most of us have, outdoor Bar-B-Q, sports, color TV, etc. Russia was a radical contrast to all others in that they expressed grandeur. They did not have a small drill press, it had to be a power plant. Their statues were huge. The murals on the walls expressed labor in full steam ahead. I doubt if what they showed really expressed their way of life throughout Russia as the other countries did. Their signs were all in Russian so you couldn't tell what they said, while other countries did print in other languages.

By the time we arrived in Paris we were travel weary so we didn't see all that we would have liked to. As all tourists do, we went to the Lido and the Folies. We enjoyed both shows as they had wonderful talent and very elaborate costumes on those that wore anything. Like all women, my wife wanted a hat or dress from Paris. She shopped all one morning and came back without a thing. She said that prices were ridiculously high on clothing. She did well on perfume as it is much less expensive than here.

I visited a couple veterinarians in Paris and was given a royal brush-off. I don't like to think that they expressed the sentiment of the rank and file of veterinarians in France. I saw Americans put on acts over there in stores that most certainly didn't depict the average American. So I guess that the profession shouldn't be judged by a couple of men who possibly had an axe to grind that day.

In Amsterdam I only had time to visit with

a Dr. Folmer. He is a real asset to the profession and he did his best to make us feel at home. He is in his 80's and working hard every day for practically peanuts. He takes our magazines and he proudly showed me a book on small animal surgery by American Veterinarians. He couldn't speak English very well but could read and understand it.

We flew from Paris to the Isle of Man for the British Veterinary Congress. Flying over the Isle was a beautiful sight. All buildings were clean and painted. The farms are divided into plots of about 40 acres, separated by rock walls covered with vines. This Isle is strictly agricultural. They have a large number of dairy stock, in fact all classes of livestock were in evidence.

About one mile out of Douglas they had a beautiful little ranch for retired old horses. There were several horses in the lush green pasture. What a paradise and a wonderful way to retire your faithful old servant.

The convention was well organized and the papers were well received. They print all papers on good paper and have them on the registration table for you to take and read before the meeting if you wish.

The veterinarians and people of the Island certainly did their best to show us a good time. Their president's reception hour was more like a smorgasbord. Tables were loaded with all kinds of sandwiches and pastry and everyone was quite jovial and the beverages were tea and coffee, either black or white. An interesting movie followed the reception. The only thing we objected to was the cold. We liked to have frozen on the Island. In fact we bought long-handled underwear. In Europe they never turn the heat on until October 1st, even though pipes would freeze and burst on September 10th. The Isle of Man was the cheapest place to live that we found on the trip. We had three large meals (no continental breakfast), tea in the afternoon and late evening, twin beds—for \$8.50 per day per couple. The food was excellent and we had a choice of menus.

I was disappointed on the Isle of Man in that I didn't find more manx cats as this is where they originated. The Manx people are different in many respects than the English. Their dialect is quite different from the rest of the British Isles.

According to Mr. J. M. Ingram, immediate past president of the British Veterinary Association, there are approximately 6000 veterinarians in the British Isles. The British Isles are about one-half the size of California, so it looks like we should still have room for more veterinarians here. I hope we don't become as thickly populated as they are, for it is bad enough here at present.

I spent several hours with Mr. Ingram in his surgery and on a call. I had lunch with him and his lovely wife and a son who is going to veterinary college in Scotland. Mr. Ingram hires six veterinarians and all have radios in their cars so they do not have to

return until they are through for the day. I was amazed that they had so much demand for veterinary service in such a small community which they served. What bothered me most in England was that the veterinarian does not have the title of doctor. He is just plain mister as any other citizen may be. It was hard to call Mr. Ingram, just mister, when he most certainly deserves a more dignified title. They have the same troubles as we all do, collections are poor also.

We stayed one week in London recuperating from the steady six weeks' grind we had just finished. We saw several shows and took tours in and around the outlying country of London. The weather was warm but wet. I had a hard time timing trips to take pictures in the sunshine. I got the change of guard in a down-pour. The sun was shining when they started but didn't last long so the boys really got wet.

One thing that interested me was the youth hostels scattered over Europe. I only wish that I was in my teens, I surely would see Europe by bicycle. The hostels are nicely located. Some are on beautiful lakes, in the mountains and in many cities. The travelers can stay in these places very inexpensively. I most certainly would recommend such a trip for any boy or girl.

The rural people are most hospitable all over Europe. They enjoy what little they have and are willing to share with others. The city folks have other ideas in most cases.

We enjoyed everything we saw and I can't remember a bad meal, although at times we wondered what they were. There are many laughs particularly on the interpretation of one another's language and what you actually come up with at times. The language barrier is not too much of a problem. You just take longer to put over what you want to buy or inquire about. I found that in all the cities most everyone understood Americans very well. When you get off the beaten path, you were a cooked goose. Even sign language was difficult there at times.

We hit Scotland on a beautiful sunny, warm September day. We took a car from Glasgow and traveled all day in every direction, working our way to Edinburgh. We went up into the Trossacks, Loch Lomond and many other beautiful spots. I would like to spend a summer in the country in Scotland, and see the country at a more leisurely pace.

In the entire tour there were about three countries we would like to have seen more of. They are Holland, Switzerland and the British Isles, particularly Scotland. In all we went through 15 countries which we admit was too fast, but in a lot of places a longer stay would have been time wasted. That you don't learn until you see for yourself.

If anyone is planning on going to the International Congress in Madrid, they should visit a few countries while there. I hesitate to recommend any particular place, for I find that people's likes and dislikes vary too much.

LOCAL ASSOCIATION NEWS

Southern California VMA

Dr. Howard C. Taylor, Burbank, was installed as president of the Southern California



DR. HOWARD C. TAYLOR

VMA for 1959 at the Association's annual installation ball at the Beverly Hilton Hotel, January 10, 1959.

Mr. Edward R. Roybal, prominent Los Angeles city councilman, served as installation officer.

Dr. Taylor, a graduate of Colorado State University in 1942,

has been one of the most active members of the SCVMA, and has held every office as well as serving on many committees.

As president of the SCVMA, Dr. Taylor will head the largest veterinary group.

In his small animal practice, two facets have been of great interest to Dr. Taylor, prescription diets and their application to small animal medicine, and developing a skill for intra-ocular surgery. His articles on prescription diets have had wide publication.

During World War II, Dr. Taylor served in the Army Veterinary Corps as a first lieutenant.

Other officers installed were: President-elect, Dr. R. J. Schroeder; first vice-president, Dr. R. C. Vierheller; second vice-president, Dr. J. H. Hensley; treasurer, Dr. W. A. Young; secretary, Dr. Fred P. Sattler. Dr. W. D. Ommert, retiring president, will serve during 1959 as the immediate past president.

* * *

Alameda-Contra Costa VMA

Newly elected officers of the Alameda-Contra Costa VMA are: President, Dr. George H. Muller; vice-president, Dr. Thomas B. Condon; secretary, Dr. John S. Blackard; treasurer, Dr. Lawrence M. Proctor.

* * *

Bay Counties VMA

Officers for 1959 are: President, Dr. Tom D. Harris, Jr., vice-president, Dr. L. O. Johnson; secretary, Dr. Seymour Roberts; treasurer, Dr. W. T. Berner. Herb Warren continues as executive secretary.

On January 13 the Bay Counties VMA met in San Francisco. Guest speaker was Dr. Robert M. Cello, associate professor of veterinary medicine at Davis. His subject was "Thoracic Diseases and Surgery," illustrated

by slides and movies. He also gave a short talk on "Laboratory Aids for Diagnosis of Distemper."

* * *

Santa Barbara-Ventura VMA

On December 4 the Santa Barbara-Ventura VMA met in Ventura, with wives of members as guests.

Mrs. Reginald Stocking, president of the Women's Auxiliary of the CVMA, spoke to the wives about organizing into an active group.

Kenneth Humphreys, CVMA Associate Executive Secretary, discussed current activities and future plans of the state association.

Dr. Reginald Stocking showed slides and discussed hospital techniques used in his practice.

Dr. Francis Knoop was elected president for 1959.

* * *

Tulare County VMA

The Tulare County VMA not only lends the services of its members to the Sequoia Kennel Club Dog Show, annually held in Tulare, but this year presented a handsome trophy (with fifty silver dollars within) to the best dog in the show. (See photo page 31) Dr. R. B. Barsaleau, president of the group, says: "Our association feels that by sponsoring a trophy each year and assisting at the show itself, we are contributing the words 'veterinary medicine' to the vocabulary of at least a segment of the animal-owning public."

In October, dairymen of Tulare County heard a presentation of bovine abortion diseases, their diagnosis and control, by Drs. R. B. Barsaleau, L. H. Brazil and A. C. Emminger.

The November meeting was addressed by Dr. Ben Collins, Paso Robles, who spoke on Fertility Testing of Range Bulls by Semen Evaluation.

* * *

North San Joaquin Valley VMA

Twelve practicing members of NSJVVMA have recently completed participation in the San Joaquin County rabies clinics which were held October and November throughout the county for the first time. Cooperation between the association members and the district health office was highly satisfactory.

The association scheduled its annual Christmas party December 20, 1958, in Lodi at the El Patio. Members and their guests attended.

Dr. D. W. Rosenberg and Dr. W. D. Woodward of Modesto recently showed colored slides of their trip to Japan, where they accompanied a shipment of animals assigned to the government of Japan.

Southern California VMA Symposium To Be Held March 4

Final arrangements have been completed for the Southern California Veterinary Medical Association's symposium scheduled for March 4, 1959, at the Ambassador Hotel in Los Angeles.

The subject to be covered in this full-day symposium is skeletal diseases with the following speakers having been confirmed to participate: Dr. James Archibald, head, small animal division, Ontario Veterinary College, will cover some of the basic material on pathology of skeletal diseases; Dr. B. F. Hoerlein, director of clinics, Alabama Polytechnic Institute, will discuss problems involving the vertebral column; Dr. Jacques Jenny, professor of veterinary surgery, University of Pennsylvania, will cover the management of fractures and application of splints; Dr. R. L. Rudy, chairman, department of veterinary surgery, Ohio State University, will cover joint injuries and management of osteoarthritis. This is the first program wherein men of such caliber have ever been assembled together on one program. In order to avoid overlapping of material, the above four speakers have been in conference in preparing their papers.

The entire symposium is under the auspices of the SCVMA and is provided at no cost, including lunch at the famed Cocoanut Grove, to its members. There will be a registration fee for non-members.

Book Review

Dorland's Pocket Medical Dictionary, *Abridged from Dorland's Illustrated Medical Dictionary*, published by W. B. Saunders Company, Philadelphia and London. Twentieth Edition, price \$4.50.

This dictionary, like its younger but larger counterpart, *Dorland's Illustrated Medical Dictionary*, from which it is largely derived, fulfills in a compact and convenient format, the three primary functions of a dictionary—the provision of spelling, pronunciation, and meaning.

Brucellosis

Four California counties—Inyo, Alpine, Del Norte and Mono—have recently been designated by the U.S. Department of Agriculture as modified certified brucellosis-free.

It is anticipated that ten counties, in addition, should qualify for modified brucellosis-free certification in the near future. They are Colusa, Lassen, Marin, Modoc, Plumas, Shasta, Sierra, Siskiyou, Tehama and Trinity.



Tulare County VMA's president Barbaletau, left, with coin-filled trophy. Ken Dyer, judge, center; and Harry Sangster, handler, with Best in Show, Ch. Evo-Wen's Impressario.

State Seeks Graduate Veterinarians

California seeks graduate veterinarians, with or without experience, to fill permanent, full-time positions in three of the major bureaus of the State Department of Agriculture. Openings, located throughout California, are with the Bureaus of Meat Inspection, Poultry Inspection and Livestock Disease Control.

The starting salary is \$530 per month, with annual merit increases to \$644. However, many veterinarians in California state service advance through promotion prior to reaching the maximum in this Veterinarian I classification. Salary ranges for Veterinarians II and III are \$556 to \$676, and \$613 to \$745, respectively.

No California license is required for veterinarians in the state meat and poultry inspection programs. For laboratory or field work, applicants must secure a license within 12 months of employment, but need none at the time of appointment. The next final filing dates are March 3, for examination March 31; and March 31, for examination April 28.

Application forms and detailed information are available from the California State Personnel Board, 801 Capitol Avenue, Sacramento 14, California.

Dr. McMurray to Santa Maria

Dr. John R. McMurray, Jr., formerly associated with Dr. John G. Cranfield, San Carlos, has taken over operation of Dr. E. H. Humphrey's practice in Santa Maria. Dr. Humphrey, retired, is a Life Member of the CVMA.

OPPORTUNITIES

For Sale

Duplex zoned for Pet Hospital; 2-4-room units completely remodeled; modern. Ideally located 20 miles south of San Francisco. No veterinarian in this city. Total price \$16,500, terms. Inquire, John Morris, D.V.M., 232 Park Blvd., Millbrae, California.

* * *

Hospital for sale—"one acre of ground; a very adequate water supply; 3-bedroom home; modern hospital and equipment on main highway between Squaw Valley and Tahoe City. Price \$40,000. This may soon be a year-around business. As it is now the seasonal return has been excellent—plus a beautiful spot to spend the summer". Write S. M. Dingwall, D.V.M., 747 Live Oak Drive, El Cajon, Calif.

* * *

Continuing practice on high desert. Includes modern hospital and full facilities, 98% small animal and 2% pet horse. Write to Robert Y. Foos, D.V.M., P.O. Box 955, Victorville, Calif. Phone 55566.

Position Wanted

California Licensed Veterinarian available to assist in small animal practice. Twelve years' experience, mostly large animal. Prefer Southern California. Write Box A-71, THE CALIFORNIA VETERINARIAN.

Veterinarian Wanted

Assistant veterinarian wanted, small animal practice, recent graduate with license preferred. Write Chester A. Maeda, D.V.M., 766 East Highland Ave., San Bernardino. TUxedo 81-1303.

* * *

Experienced veterinarian wanted for small animal practice in San Francisco area. Hospital member A.A.H.A. State full qualifications and references in 1st letter, and when available for interview. Salary, \$10,000 annually. Write THE CALIFORNIA VETERINARIAN, Box A-72.

California State Veterinary Position

Excellent opportunities in California State Government for Graduate Veterinarians with or without experience in practice. Salary range \$530-644. Senior veterinary students eligible to apply before graduation. Write at once for further information. CALIFORNIA STATE PERSONNEL BOARD, 801 Capitol Avenue, Sacramento 14, California.

* * *

Veterinarian wanted; Salary \$700, good working conditions. Mixed practice; mostly large animal. Permanent. Write F. H. Saunders, D.V.M., 336 E. Lafayette St., Stockton. HO 4-4521.

OUT-OF-STATE NEWS

The Women's Auxiliary to the Washington State VMA has elected for the forthcoming year the following officers: President Mrs. E. C. Stone; President-Elect, Mrs. Chet R. Griffith; Secretary, Mrs. Robert L. Burch; Treasurer, Mrs. Robert Ebright; Delegate to the AVMA, Mrs. Chet R. Griffith.

Applicants

Atwood C. Asbury, Salinas. Vouchers: Earl G. Hafen, Frank W. Wayland.

Leland J. Bell, Carmichael. Vouchers: C. M. Sepponen, E. J. Brauner.

Charles Edward Brandner, Petaluma. Vouchers: C. C. Rasmussen, E. A. Siegel.

Charles W. Gunn, Sacramento. Vouchers: L. Martinelli, H. S. Cameron.

Leonard Griffin, Sacramento. Vouchers: Eugene C. Story, William E. Steinmetz.

Donald Q. Wasson, Lakeport. Vouchers: Thomas A. Berry, Walter F. Hughes.

John J. B. Wiley, Stockton. Vouchers: Ben E. Dillon, Francis H. Saunders.

Roy R. Conner, Schering Corp., Dies

Roy R. Conner, veterinary marketing manager of Schering Corporation, died December 21 at his home in Glen Rock, New Jersey. He was 39 years old.

Mr. Conner had been with Schering since the company first formed a veterinary marketing department in 1954. He had been manager of the operation since its inception and under his direction it had grown to be one of the leading ethical veterinary drug lines in the country.

He was President of the American Veterinary Exhibitor's Association and a member of the American Animal Health Pharmaceutical Association.

Public Relations Radio Scripts

Henry Schacht, who conducts the Farmer's Digest program each morning at 6 o'clock over Radio KNBC, San Francisco, has recently broadcast five taped scripts from those prepared by Dr. Kenneth G. McKay, Extension Veterinarian, Davis.

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Histology microscope slides prepared for veterinary pathology and research. Ten years experience guarantees unsurpassed workmanship. Fast mail service. Write your needs. Bay Histology Service, 409 Roosevelt Way, San Francisco 14, California.

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 - Loss, theft, escape, self injury, burglary, robbery, etc.
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 - Goods or products, sold, handled, or distributed by insured.
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- Loss to dog by fire, maximum \$1,000 per dog, \$25,000 aggregate.***
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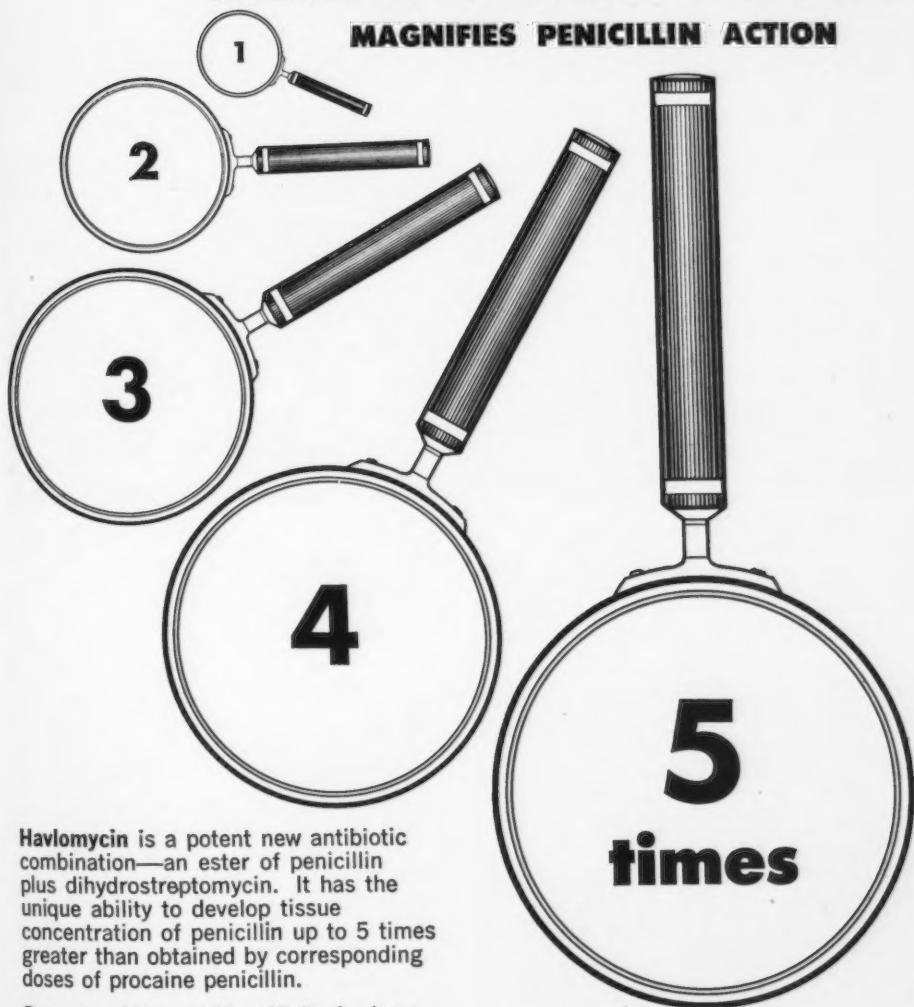
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Dosage: large animals, 1 cc. per 100 lb. body weight once daily for 2-4 days.
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Supply: 10 cc. vial with vial of sterile diluent.

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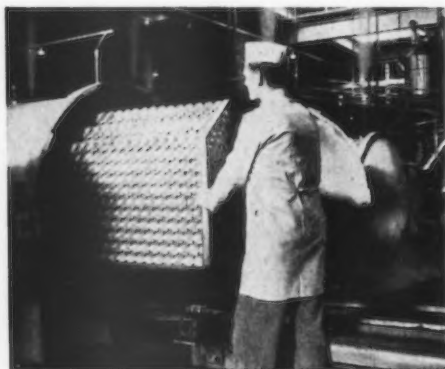
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Calsem-DM presents a stable solution containing calcium gluconate 20%, dextrose 20%, calcium glycerophosphate 2%, magnesium chloride 2%; in water, with stabilizer and preservative. As replacement therapy, Calsem-DM supplies an effective concentration of calcium until Parterol takes effect.



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One clinical study of 328 cases of milk fever showed that calcium I.V. and Parterol I.M. were effective in 98% of the patients.¹

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1. Harris, J.R., and Clarkson, T.B., Prevention of Relapses in Milk Fever, Vet. Medicine, 12:696 (Dec. 1955)

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Injection SPARINE makes money for you.

Even after an 18-hour trip, SPARINE, given intramuscularly to cattle, reduced shrinkage in most cases over 50%.

Group*	No. of Animals	Weight prior to shipping		Weight at Feed lot		Loss in pounds		% of shrink
		Total	Average	Total	Average	Group	Average	
1—SPARINE, 0.5 mg./lb.	73	25,525	349.6	24,840	340.25	685	9.25	2.6
2—Untreated	30	10,365	345.5	9,775	325.89	590	19.8	5.6
3—SPARINE, 0.5 mg./lb.	59	26,365	446.65	25,562	433.3	803	13.3	3.04
4—Untreated	26	11,300	434.7	10,530	405	770	29.6	6.89
5—SPARINE, 0.4 mg./lb.	50	30,010	600.2	27,030	540.6	2,980	59.6	9.93
6—Untreated	50	31,160	623.2	27,070	541.4	4,090	81.8	13.12

*Groups 1 to 4 travelled 18 hours by truck. Groups 5 and 6 travelled 17 hours by truck.



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To: John Doe, D.V.M.

Subject: New indication for SPARINE, I.M.

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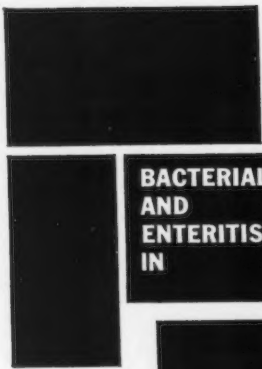




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*acetate veterinary
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- *produces local, sustained relief of pain and stiffness in inflammatory conditions of the joints and accessory structures.*
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- *combats stress associated with surgical procedures and shock following trauma.*

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JANUARY-FEBRUARY, 1959

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- combats shock . . . relieves stress
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Adrenomone, unlike corticosteroid compounds, stimulates the entire adrenal cortex and thus may be used without danger of adrenocortical atrophy when extended therapy is desired.

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A single 2 cc. subcutaneous or intramuscular injection two weeks after weaning builds a high level of protection against hepatitis during the critical period of a dog's life.

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infectious canine hepatitis vaccine
(tissue culture origin)

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* superior antigens of cellular origin

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